

## TACTILE SWITCH FOR AN ELECTRONIC DEVICE

### CROSS-REFERENCE TO RELATED APPLICATION

**[0001]** This patent application is a continuation patent application of U.S. patent application Ser. No. 16/247,335, filed Jan. 14, 2019, and titled “Tactile Switch for an Electronic Device,” which is a continuation patent application of U.S. patent application Ser. No. 16/179,872, filed Nov. 2, 2018 and titled “Tactile Switch for an Electronic Device,” which is a continuation patent application of U.S. patent application Ser. No. 16/033,491, filed Jul. 12, 2018 and titled “Tactile Switch for an Electronic Device,” which is a continuation patent application of U.S. patent application Ser. No. 15/969,630, filed May 2, 2018 and titled “Tactile Switch for an Electronic Device,” now U.S. Pat. No. 10,175,652, issued Jan. 8, 2019, which is a continuation patent application of U.S. patent application Ser. No. 15/829,509, filed Dec. 1, 2017 and titled “Tactile Switch for an Electronic Device,” now U.S. Pat. No. 9,971,305, issued May 15, 2018, which is a continuation patent application of U.S. patent application Ser. No. 15/637,949, filed Jun. 29, 2017 and titled “Tactile Switch for an Electronic Device,” now U.S. Pat. No. 9,836,025, issued Dec. 5, 2017, which is a continuation patent application of U.S. patent application Ser. No. 15/465,523, filed Mar. 21, 2017, and titled “Tactile Switch for an Electronic Device,” now U.S. Pat. No. 9,709,956, issued Jul. 18, 2017, which is a continuation patent application of U.S. patent application Ser. No. 15/261,904, filed Sep. 10, 2016, and titled “Tactile Switch for an Electronic Device,” now U.S. Pat. No. 9,620,312, issued Apr. 11, 2017, which is a continuation patent application of U.S. patent application Ser. No. 14/455,375, filed Aug. 8, 2014, and titled “Tactile Switch for an Electronic Device,” now U.S. Pat. No. 9,627,163, issued Apr. 18, 2017, which is a nonprovisional patent application of and claims priority to U.S. Provisional Patent Application No. 61/864,389, filed Aug. 9, 2013, and titled “Tactile Switch for an Electronic Device,” the disclosures of which are hereby incorporated herein by reference in their entireties.

### TECHNICAL FIELD

**[0002]** The present disclosure relates generally to electronic devices, and more specifically, to input devices for computing devices.

### BACKGROUND

**[0003]** Many types of electronic devices, such as smart phones, gaming devices, computers, watches, and the like, use input devices, such as buttons or switches, to receive user input. However, many input devices, such as buttons or switches, may allow only a single type of input. For example, a button may only transmit one type of signal, which is a compression of a button that completes a circuit. As electronic devices reduce in size, it may be desirable to have fewer input buttons or devices, without reducing functionality or the number of input types that can be used by a user to provide information to a device. Further, in instances where the button or switch may be movable or rotatable, the button may not be able to include a sensor or other electronic element that requires data and/or power to be transferred

between the button and one or more components of the electronic device, as the movement may make an electrical connection difficult.

### SUMMARY

**[0004]** One example of the present disclosure takes the form of an input module. The input module includes a switch, a rotatable and translatable input member operably connected to the switch and configured to actuate the switch, and an electrical contact operably connected to the switch and in electrical communication with the input member. During operation, the electrical connection between the input member and the electrical contact is maintained during translation and rotation of the input member. The input module may be used with a variety of electronic devices and can be used by a user to provide input to those devices.

**[0005]** Another example of the disclosure takes the form of a switch assembly. The switch assembly includes a rotatable and translatable input member, a coupling operable connected to the input member and moveable therewith, a tactile switch operably connected to the coupling, and an electrical contact operably connected to the tactile switch and in electrical communication with the coupling. The input member is configured to actuate the electrical component when the input member translates, and the coupling rotates as the input member rotates. Additionally, the electrical connection between the coupling and the electrical contact is maintained during translation and rotation of the input member.

**[0006]** Yet another example of the disclosure includes a wearable electronic device. The wearable electronic device includes an enclosure defining a cavity and a button aperture defined through the enclosure. The wearable electronic device also includes one or more processing elements received within the cavity, and a switch module operably connected to the enclosure. The switch module includes a tactile switch in communication with the processing element, a rotatable and translatable input member operably connected to the tactile switch, and a contact operably connected to the tactile switch and electrically coupled to the input member. During operation, the electrical coupling between the input member and the contact is maintained during translation and rotation of the input member.

### BRIEF DESCRIPTION OF THE DRAWINGS

**[0007]** FIG. 1 is a top plan view of a wearable electronic device including a multi-input device.

**[0008]** FIG. 2 is a simplified block diagram of the wearable electronic device.

**[0009]** FIG. 3 is a cross-section view of the wearable electronic device taken along line 3-3 in FIG. 1.

**[0010]** FIG. 4 is a cross-section view similar to FIG. 3 showing a user input force being applied to a button of a tactile switch assembly for the electronic device.

**[0011]** FIG. 5 is a front elevation view of another example of a tactile switch that may be used with the tactile switch assembly of FIG. 4.

**[0012]** FIG. 6 is a top plan view of the tactile switch of FIG. 5.

**[0013]** FIG. 7 is a bottom plan view of the tactile switch of FIG. 5.

**[0014]** FIG. 8 is a front elevation view of the tactile switch of FIG. 5 as a translating force is applied thereto.